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FULL PAPER

Exploring the perceptions of advanced practitioner radiographers at a single breast screening unit in extending their role from delivering benign to malignant biopsy results; a preliminary study

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Objective: The study aims to explore the perceptions of advanced practice radiographers (APRs) currently giving benign biopsy results to extend their role to deliver NHS Breast Screening Programme (NHSBSP) malignant outcomes. In the UK, APRs are appropriately trained to deliver results, yet traditionally have been cultured not to. Increasing pressures on NHSBSP units are a key driver for APR evolvement. A significant lack of published research provides the rationale for the study, combined with an identified service need.
Methods: Following ethical approval, a grounded theory design was applied to interview six APRs individually in a single breast screening unit. Extracted themes were considered during a subsequent focus group.
Results: Five core themes identified; (i) role of the APR, (ii) patient experience, (iii) efficiency, (iv) role boundaries, and (v) delivering results.
The findings indicate the ambiguity of radiographers delivering results within their profession, outlining the potential impact on themselves and patients. Mammography APRs are skilled to deliver results, and whilst enforced barriers may restrict extension a supportive environment can overcome these. Additional training is necessary to implement the role in the screening service.
Conclusion: Identified within their scope of practice; APRs have the ability with appropriate training and peer support to effectively deliver results with a patient-centred approach.
Advances in knowledge: This study has identified important enabling factors and challenges concerning role extension in the delivery of breast biopsy results. The apparent suitability of APRs to communicate results may address breast service pressures, with benefit to patients and the radiology profession.

INTRODUCTION

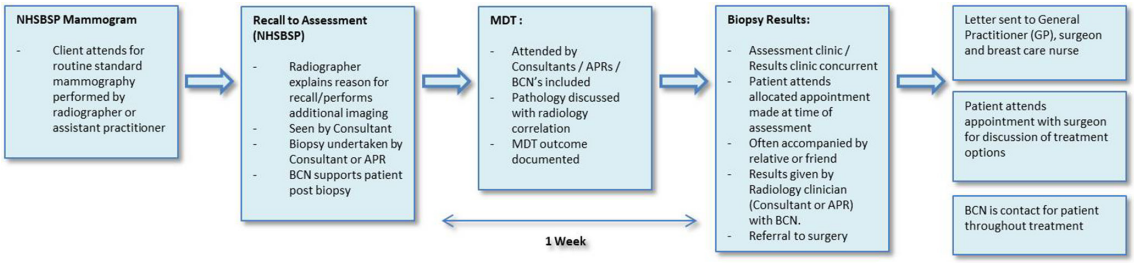
Traditionally, radiologists deliver breast screening biopsy results to patients followed by a discussion of treatment options with their surgeon. This process may vary, whereby surgeons may opt to discuss results and management simultaneously. Regardless, breast cancer patients are usually asymptomatic, well-women and the communication method may significantly affect their psychological outlook.[1]

Incidence of breast cancer in the UK is approximately 52,000 per annum.[2] Increasing pressures on the radiology workforce contribute to inequalities in cancer care and chronic shortages of breast screening staff.[3] The Royal College of Radiologists consensus predicts 38% of breast radiologists retiring by 2025.[4] Skill-mix incorporating a 'four-tier delivery' service model was implemented to include advanced practitioner radiographers (APRs) being trained to perform key aspects of the service conventionally undertaken by radiologists.[5]

Advanced practitioners "*make appropriate clinical decisions related to their enhanced level of practice, directly impacting on the patient care pathway*".[6] Clinical resistance to advanced practice is reported, hindered by lack of leadership, with radiologists the main impediment; a theme which resonates within radiography in the UK.[7] However, supportive radiology units have proven to blur the professional boundaries with increasing APRs.

Radiographers are non-medically trained and unlike doctors are not taught the process of breaking bad news. However, members of the breast team, including radiologists and APRs working within the National Health

Figure 1. APR, advanced practitioner radiographer; BCN, breast care nurse; GP, general practitioner



Service Breast Screening Programme (NHSBSP) clinics should undertake accredited advanced communication skills training (ACST).[8] Although no specific guidance exists for radiographers to communicate results to NHSBSP patients; "*all females with a diagnosis of breast cancer should receive their results in the presence of a clinician and a clinical nurse specialist in breast care*".[9]

Locally at East Lancashire Breast Unit, Consultant Radiologists and Consultant Radiographers deliver results during an assessment clinic, supported by the breast care nurses (BCN's). Delivery can be logistically difficult when patients are being assessed simultaneously (Figure 1). All APRs within the unit underwent NHS '*Connected*' ACST before delivering normal, benign and indeterminate results. All agreed to extend to deliver malignant results. Therefore, it has recently been proposed within the authors' department, that APRs have the underpinning knowledge and skills to deliver all breast screening results with appropriate support, expanding on their present role. Currently, no existing literature pertains to radiographers delivering NHSBSP results, and practice may vary. Expansion of the review to include other professionals; *i.e.* medical doctors, nurses and practitioners highlighted recurring themes, providing broad questioning for the interviews and the foundation for the study (Table 1).

This research aims to explore the perceptions of APRs within a single breast unit in delivering breast biopsy results to NHSBSP patients.

METHODS

Grounded theory design supports investigation of a previously unexplored area of radiography using a systematic set of procedures to compare a small number of participants.[38] Data collection from individual semi-structured interviews based on the literature and a focus group was analysed with a constant comparative approach.[39] NHS and University of Salford ethics committee approval granted. Six APRs within a single NHS breast unit consented to interview, with five available for the focus group. Purposive sampling aided in-depth exploration.[40] Group commonalities were considered with other professionals excluded so as not to reduce the level of disclosure or diversify from the research question.[41]

Overall age ranged from 40 to 62 with between 13 and 27 years specifically within mammography. All had at least 5 years' experience in advanced practice with qualifications including four with reporting skills, five performing stereotactic biopsies whilst two undertake ultrasound examinations. All six have undergone accredited ACST.

Inclusion of highly experienced APRs poses a transferability limitation of the findings; extension to a multicentre inquiry is advised for data saturation. Although ACST is a recommendation forAPRs, it is unknown if nationally all have received advanced training.[8]

Interviews

Six broad areas were explored from the literature providing the foundation for the semi-structured interviews. Questions were subject to change given the iterative nature of grounded theory.[38] Inductive inquiry highlighted unexpected topics not reflected in the literature search such as personalities. Interviews were conducted privately away from clinics as familiar yet confidential. Full transcription with anonymised identifiers enabled thematic analysis.[42] Chatham house rule applied[43] with NHS occupational health available for debriefing. Coded transcriptions were checked by a second person unfamiliar with the field to increase credibility.[44]

Focus group

Identified themes were either refuted or consolidated during a 1-hour focus group. The analysis was done separately to avoid threatening the trustworthiness of the findings.[45]

Eventual themes largely reflected the concepts identified within the literature; however, an inductive approach exposed unconsidered topics such as whether radiologists would want to relinquish this aspect of their practice.

Researcher

Triangulation is relevant given the researcher is known to all six participants. Individual interviews may counteract the Hawthorne effect whilst highlighting differences, enabling greater understanding during the subsequent focus group.[46] Although broadly reproducible, it is acknowledged qualitative research may be influenced by the researcher; therefore, findings should be clarified with another team, whereby results may differ. All APRs were interviewed, transcribed and coded by the same researcher for consistency. The researcher has similar experience which proves useful to heighten theoretical sensitivity.[39] Potential biases were minimised through external coding validation, reflexivity and audit trail.[47] Full transcriptions available to increase transparency.

Table 1. Literature review provided broad themes for the interview questions

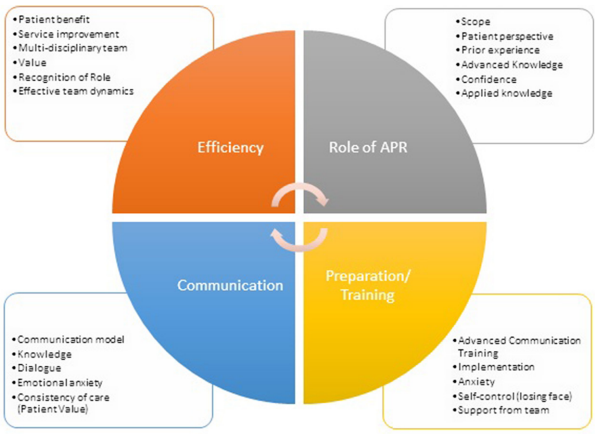
Literature review – Themes	Areas to be explored	Broad questions
ACST required to appropriately deliver results including breaking bad news[10]	ACST 'Connected' NHS Course	What do APRs think about the preparation and training they have received?
Cochrane review and patient guidelines for communication[11,12] Spikes model of communication as taught in the Connected NHS ACST[13] Oncology settings provide increased experience and confidence for delivering results[14] All members of the breast cancer clinical team should follow the recommendations on communication in NICE's guideline on patient experience in adult NHS services.[15] Patients require all information. Divergent communication styles – medical doctors' *vs* nurses.[16] Patient preferences on information; time allowance, environment and content.[17,18]	Communication styles Patient preferences Communication model Patient-clinician guidance (ASCO,2017) Patient experience	What Process is utilised when delivering results to patients?
APRs are required to attend NHSBSP MDT meeting.[19] Patient anxiety heightened during recall.[20] Patient navigator role will provide continuity of care[21]	MDT) meeting Patient guide – continuity Role responsibility	How does the service value the APR role in delivering results to patients?
Adopting change using service need to develop advanced practice.[22] False-positive results can be equivalent to cancer diagnosis anxiety[23] Communication of sensitive information greater in mammography.[24] Mammographers have greater emotional intelligence within radiography.[25]	Scope of practice Development of advanced practice NHSBSP experience Transferable skills Emotional intelligence	What are the benefits to APRs in extending their role in delivering results?
Emotional avoidance and blocking behaviours[26,27] Differences in patient responses.[28–30] Professionally vulnerability delivering results[31]	Emotional impact Patient anxiety Litigation Feelings of guilt or blame	Are there any concerns about giving results to patients and their families?
Communication difficulties[32–35] Emotional burnout common in breaking bad news.[36] Clinician support and communication failures.[37]	Difficult conversations Burnout Further training	What additional support do APRs require to deliver all biopsy results?

ACST, Advanced Communication Skills Training; APR, advanced practitioner radiographer; MDT, multidisciplinary team.

RESULTS

Open coding extracted 242 codes from the 6 semi-structured interviews, with relationships (axial coding) revealing 22 subthemes; categorised into 4 core themes (Figure 2). Identified concepts were explored further within the focus group; 130 codes extracted, grouped into 11 subthemes and 5 final core themes (Figure 3).

Figure 2.



Role of APR (Table 2)

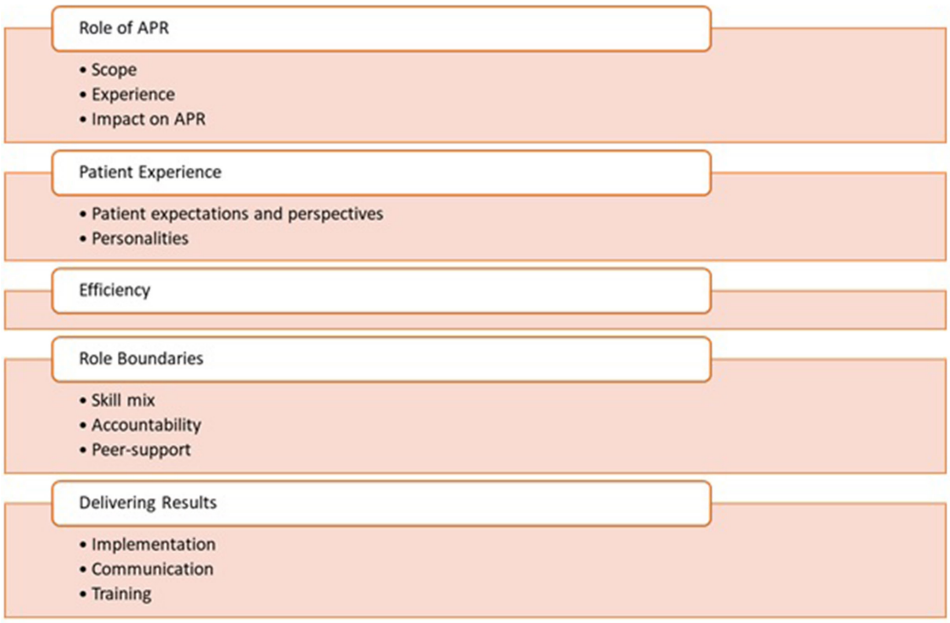
Scope of practice

Extension of practice has been difficult historically. It was widely discussed that radiographers often feeling constrained within their profession. Disclosure of results has been discouraged typically in favour of a paternalistic model. However, APRs agreed their scope is evolving and radiographers are no longer seen as "*button-pushers*", rather they can "*drive the service forward*". However, despite possessing the required skills,they feel in "*unknown territory*", indicating other breast units are watching to see how this is managed. All agreed that delivering biopsy results is a good extension of their role and is considered within the scope of their practice.

Experience

Advanced practice experience and continuity of care are considered advantageous by the APRs. Although potentially

Figure 3. APR, advanced practitioner radiographer



controversial,it is deemed no different to undertaking practice which is traditionally the role of the radiologist such as biopsy and ultrasound. Stereotactic biopsies are considered "*task-based*"; however, during intervention APRs acquire experience in managing patient anxiety. Repeated interaction throughout a patients screening journey can develop a relationship with the APR role rather than the individual; consequently, APRs consider they have an empathic but impassive approach.

Impact on APR

APRs believe delivering results is the natural progression of their practice. Initially, APRs considered their own feelings indifferent; however, exploration deduced that giving good news feels empowering. All had concerns regarding the emotional impact with fears of "*losing professional face*". However, it was acknowledged the "*relief*" from benign results can be emotional, whilst indeterminate results are often the most difficult for patients to understand. When questioned, APRs stated they utilise self-coping mechanisms and debriefed as a cohort. All agreed they feel comfortable extending their role with ongoing support.

Patient experience (Table 3)

Patient expectations and perspectives

Whilst acknowledging not all patients are the same, APRs recognise that not discussing treatment options at the time of diagnosis may enable patients to process the result before meeting with their surgeon. The belief that only information is important to patients' was disputed by one APR speculating on societies perceptions of expecting to see a doctor. It is suggested patients have greater confidence in doctors and this remains '*traditional*'. Arguably, the continuity of care between APR and patient may prove favourable within the specific context of mammography. The difference in opinion regarding patient expectations advocates that further data is needed. Perhaps the task of disclosing results would be no differently received from APR's than

Table 2. Example quotes from radiographers' regarding the role of the APR

Role of the APR	
Scope of Practice	APR1: *"Do you remember further back with red dot, you can't even put a red on a film, it was big controversy".* APR3: *"it's something we take for granted within our profession that we do not do it and we cannot do it. You cannot give the results of an X-ray".* APR6: *"I think when I first thought about it, I thought oh that's more responsibility but it's not really more responsibility because I think actually you know doing ultrasound and providing a diagnosis, that holds a lot of responsibility. It's just a different type of responsibility".* APR1: "*…moves us away from being task-based radiographers more to a fuller rounded healthcare professional".*
Experience	APR1: "*you need to be at the level where you can see the patient pathway, to understand giving results".* APR4: "*…you have to be able to do a biopsy and you have to explain to them whilst they're there".*
Impact on APR	APR5: "*When you've done the biopsy and you get to give them their results …"it's nice to be able to tell them everything's alright".* APR4: "*Yeah that's my biggest fear really, is giving the result and them crying".*

APR, advanced practitioner radiographer.

Table 3. Example quotes from radiographers' regarding patient experience

Patient Experience	
Patient expectations and perspectives	APR1: "*I think the patients think they want all the information at once" … "as in treatment options and what's going to happen next and what's going to happen down the line. But that's not necessarily the best thing for them. So, having that little stop gap I think to go away and digest it is better for them than they might realise at the time".* APR2: "*I don't think they really care who gives the results to them as long as they know they are a professional and they know what they're talking about"* APR4: "*All the patients want to know is what have I got and is it treatable".* APR3: "*I think they want to hear it from a doctor". "I think they take information better from doctors" … "rather than other health professionals. Because there is a respect that comes just from society. And respect for doctors".* APR3: *"I mean we, because we work here, we know that the education that everyone receives to be in the position that they're in and therefore they are qualified enough to do that". … "we know that, people outside don't necessarily know that".* APR4*: "I think some patients are afraid to ask doctors questions and some see that as a barrier".* APR3: *"We might be better suited to put it into layman's terms"* APR1: *"especially in mammography you might see them on the van when you do their mammogram, you might come across them in the assessment and then you might do the biopsy. You might then give the results. It's continuity. And there's a rapport that you would get with the patients. And that's all an extension of your advanced practice"*
Personalities	APR3: *"We are all one personality type dealing with all these different personality types that we're not maybe aware of".*

APR, advanced practitioner radiographer.

radiologists, with treatment options and prognosis discussed separately by the surgeons in both instances.

Personalities

Personality types were not an intended focus within this study. However, one participant stated they had previously conducted the Myers-Briggs personality test amongst radiographers and found similar sentinel profiles, indicating they have a consistent methodical approach. Inductive reasoning suggests communication barriers are imposed by personality types between clinicians and patients. The recommendation for radiographers to observe a wide variety of consultations is proposed to enable adaptation.

Efficiency (Table 4)

Efficiency within the clinics and reduced patient waiting times was identified during every interview, reaffirmed during the focus group. Although APRs assumed radiologists would prefer to communicate results themselves; APR-led clinics would not be dependent on radiologist availability. Patients' could receive the same information, maintaining the process whilst releasing radiologists for other duties. Additionally, separating anxiously recalled patients' to those awaiting results relieves departmental pressures whilst allowing for longer appointments.

Table 4. Example quotes from radiographers' regarding efficiency

Efficiency	
Efficiency	APR1: "*There will be service need because we're not the only unit struggling for radiologist's time or even really radiologists you know"* APR1: *"it does move us on to a bit of a higher level of understanding of what they [radiologists] have to go through and what their jobs are" …" I think it makes us more of a team member"* APR6: "*We definitely have support and we have the breast care nurses as well"*

APR, advanced practitioner radiographer.

All APRs feel valued for their experience and have increased respect for the radiologists and BCN's. Team cohesiveness is a strong subtheme and whilst it is accepted that specialist nurses could deliver results, increasing pressures advocates efficiency with integration from the APRs. An additional benefit of radiographers delivering results is being able to discuss the diagnostic workup. Locally, APRs are expected to discuss breast screening patients during the multidisciplinary team (MDT) meeting before giving results and so will be aware of agreed individual patient management.

Role boundaries (Table 5)

Skill-mix

The APRs experience in biopsy procedures can be applied to delivering results; technical complications, tissue sampling, interpretation error, clip migration, etc. Locally, the vacuum-assisted biopsy (VAB) procedure is fully APR led. Therefore, for those patients with an indeterminate result, the procedure can be explained and consented for during the results process without radiologist intervention. MDT discussion with a corroborated outcome was found to increase confidence in communicating the result.

The essential relationship between the patient and BCN is recognised; from the first encounter at assessment to transitioning to surgical consultation. It may be claimed APRs are potentially encroaching on the BCN role. However, whilst both undergo ACST training and either could deliver results independently, a collaboration between the two disciplines provides greater support to the patient.

Table 5. Example quotes from radiographers' regarding role boundaries

Role Boundaries	
Skill-mix	APR4: "*another reason why maybe advanced practitioner's give results because we know the ins and outs of the biopsy whereas if a surgeon were to give that result, they might say something like…they didn't take enough but not explain why. The surgeons might think we've done the wrong area or used the wrong needle so there are some advantages of us giving results*" APR4: "*some may feel that we're stepping on their toes maybe*" APR1: "*[BCNs] are very stretched aren't they. The breast care nurses say all the time about how there's just not enough staff to cope with the clinics they have*". APR5: *"I think they'd realise it's for the benefit of the patient after all. I think they know we're not the cause for them not to be able to do it*".
Accountability	APR5: *"that's why it's good if we're the ones that have done the biopsy and have met before*". APR4 "*Yeah it adds to the continuity*".
Peer-support	APR3: *"I am impressed with radiologists and surgeons how well they can link to other things, their medical knowledge that we don't have*". APR2: *"We're told aren't we that [patients] only retain half the information anyway don't they. They can always ask the surgeons'" … "It's an opportunity for the patient to take the information away and think about what they want to ask next time*". APR2: *"I've been in when they [patient] asked questions to the radiologists and they just…sort of say they don't actually know the surgeons will tell them. I know they [the radiologists] know but they [the radiologists] say it's up to the surgeons*". APR1: *"if you do it in a peer environment it's supportive which is best" … "I think we do that process anyway. I don't see why it wouldn't still happen*". APR2: *"the breast care nurses will give a lot of information because they're on hand, the surgeons aren't*".

APR, advanced practitioner radiographer; BCN, breast care nurse.

The guidance stipulates '*a clinician and a clinical nurse specialist in breast care*' and therefore can be interpreted to include the possibility of APRs extending their role.[9]

Accountability

Locally, all NHBSP patients return to radiology regardless of whether they will require surgery, advocating continuity of care. Whether radiology or surgery should deliver results remains subjective. Logistically, a single appointment with a surgeon may be efficient; however, other image-guided procedures may cause delay; therefore, the decision of responsibility may be arbitrary and ultimately determined by the departmental structure.

All agreed a departmental protocol is essential, highlighting the medicolegal considerations of advanced practice.

Peer-support

Professional anxiety regarding treatment knowledge was identified; however, all agreed this information should be deferred for surgical consultation. All APRs feel confident delivering results independently and naturally debrief. The consensus of utilising a communication model ensures standardised best practice is achieved.

Delivering results (Table 6)

Implementation

Observing biopsy result consultations was considered unstructured, highlighting the proactiveness required by individuals to acquire experience. APRs agreed ACST suitably developed communication skills. Initially, delivering benign and

Table 6. Example quotes from radiographers' regarding delivering results

Delivering results	
Implementation	APR5: "*Think some people got more opportunities. Everybody got to go in and observe before we started doing it.*" APR6: "*Yeah I think so because it [giving benign results first] just helps with the process doesn't it, you know. And how to react to the patient and the sort of things to say and I know it's a different scenario but yeah I think you've got the grounding*".
Communication	APR6:"*[using a communication model] …talk to them a little bit more first. Just to get a feel of how you know their perception of things is and how I think they might take it*". APR1 "*anxiety then arises usually from the relatives rather than the patients because the relatives" … "question you more closely because they see that as their role as patient advocate. The anxiety can come when you answer that question and the instant you answer the question; the question comes again in a slightly different form. Questions take a different turn and it's sometimes difficult to anticipate what they are going to say*". APR4 "*with a relative you know they could always kind of interrupt you, so you need to be methodical about how you would give results*".
Training	APR3: *"I don't know if it's just one of those things that you just learn over time. Or if it's one of those things that you are just good at*". APR3: *"I thought she was tremendous. I knew the lady very well, and she [consultant radiographer] didn't yet she delivered it in the absolute perfect manner, for her. And on paper this lady is very intelligent, a retired nurse. And the way she [consultant radiographer] delivered the results was not how I would deliver the results to somebody I knew was a retired nurse. And yet she pitched it at exactly her level without knowing her personally. And I don't know how she did that" … "I think she changed tact a little a little bit during when she realised how she was reacting to it. She simplified it a lot*".

APR, advanced practitioner radiographer.

indeterminate results increased individual confidence to extend to breaking bad news.

Communication

A structured methodical approach is adopted by all APRs as taught through the NHS 'Connected' ACST. This approach would strongly be adhered to for malignancies. Knowledge wasn't a concern, rather how to communicate effectively without causing unintentional harm; "*to know how much not to say*"and *"the fear of being misunderstood"*. It is assumed delivering results is a process which is learnt through experience. Some trepidation regarding communication difficulties from patients' relatives was identified, overcome with experience. Communicating the outcome to the surgeon and general practitioner via a dictated letter is considered an extension of radiographer practice.

Training

Effective communication by experienced clinicians was thought to be natural rather than learnt behaviour, however, all APRs feel appropriately supported to develop. Experiential learning enables development and whilst patient feedback following this preliminary study would be valuable, BCN opinion could represent an alternative solution. ACST was considered satisfactory and whilst further formal training is not required, contextual observations with communication strategies are necessary.

DISCUSSION

Delivering results is '*new territory*' for APRs. However, the task is within their scope of practice and supported by the professional definition that autonomy is determined by their competencies, underpinned by appropriate training.[6] Advanced practice experience is considered essential with communication skills established from interventional proficiencies.

All APRs expressed fears of becoming upset. Although regarded as an empathic response, it's reported emotional discussions are a leading cause of blocking behaviours amongst healthcare professionals to reduce distress.[32,48] Benign results can be emotional with patients feeling relieved. However, indeterminate results can be confusing for patients to understand, implying emotional support is required for the delivery of all results, not only malignancies. Emotional stress can lead to communication failings as highlighted in the Francis Report[37]; therefore, changes in '*traditional*' practice necessitate department support. In our study, burnout was discussed with regular debriefing considered an alleviation strategy.[31]

Not all patients have the same expectations, however, the taught SPIKES communication strategy within the NHS *'Connected'* programme invites patients to accept more information from the clinician.The APRs had an understanding of providing a warning shot and shock response, consolidating the theory that patients may be unable to recall information during a cancer diagnosis.[13,49,50]

Hierarchy within medicine is not unfamiliar, however, this perception contradicts the literature which indicates non-medical healthcare professionals deliver results successfully.[32] Although patients may be unfamiliar with the radiographer role, doctors could be regarded as using overcomplicated technical language which is less patient-centred, providing a barrier to facilitating communication, with surgeons identified as the poorest communicators in some instances.[8,16] Role of the patient-navigator within breast screening identifies with the concept of an established rapport between the patient and radiographer, specific to mammography; from screening to biopsy.[21] This continuity of care enables communication which may be unreplicable in other radiography environments.

Personality types were unanticipated; discussion arose of potential conflict between the patient and caring sentinel practitioner, conducive within health care. Communication barriers imposed by personality differences may be overcome by adaptive communication techniques learnt through observation.

In 2016, 407 radiologists were found to be working in breast as part of their job plan, not necessarily solely within this speciality, with too few trainees to replace the retiring workforce.[4] APR-led result clinics could be non-dependent on radiologist availability, thereby increasing workflow. It is assumed more financially viable, given that APRs retain the necessary skills and are already integrated into the team. APRs could be considered encroaching on the role of the BCN; however, it was recognised APRs would replicate the role of the radiologist only, working alongside the BCN as required for NHSBSP malignant results. This supportive dynamic may combine skills, whilst reducing the cost of additional resources.[9] Some quantitative post-implementation evaluation is required to evaluate these potential benefits.

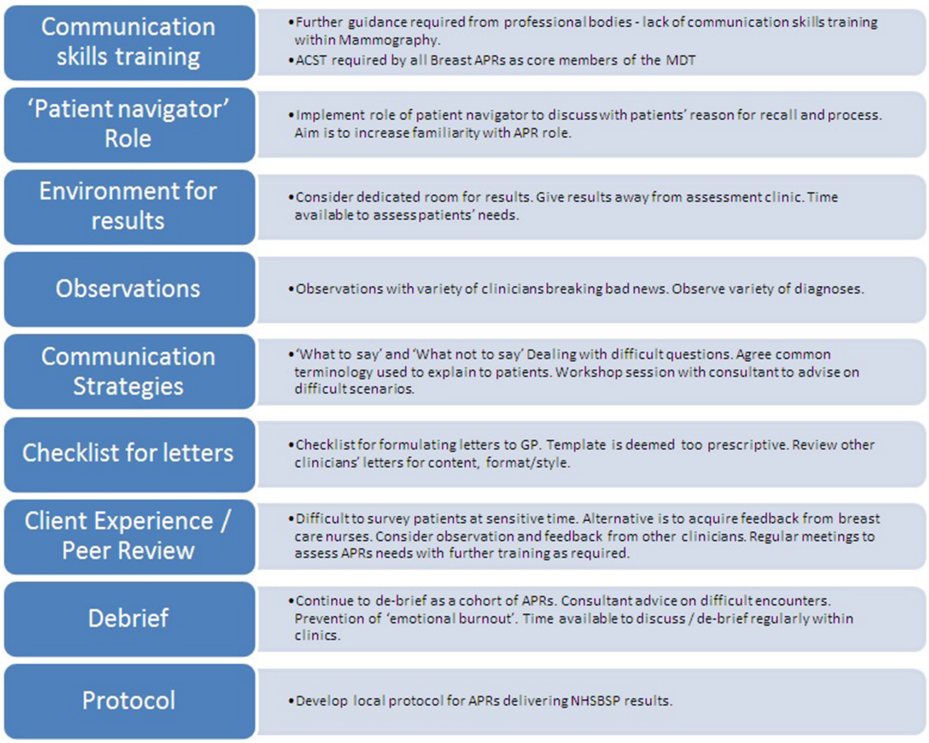
APR discussion within the MDT meeting is considered best practice. This combined with a corroborated outcome, increases confidence in communicating the result.[19] Confident communication may minimise the psychological impact of recall to assessment which prevents future uptake.

Radiology support was identified as increasing confidence in role extension, with a departmental protocol required. Professional anxiety of limited treatment knowledge was disputed as APRs have the necessary extended knowledge of imaging and pathology within their scope of practice.

Experiential learning is natural to radiographers through reflective development, with ACST a recommendation for all senior professionals in cancer care.[6,8] Following ACST, no further formal training was needed, however, observations and communication strategies were appreciated. Proposal for implementation was established from the focus group (Figure 4).

All APRs agreed they feel able to deliver results following ACST and observation. Delivering results was established as a process rather than task-orientated with increased confidence related to experience, thus reducing feelings of vulnerability.[31] Delivering normal and benign results is rewarding and increased practitioner confidence in utilising the process to include breaking bad news. A structured model of communication which advocates checking patient understanding can identify misinterpretations and counteract the unintended harm which may be afflicted,

Figure 4.



thereby alleviating the clinicians' fears, supported by the patient–clinician guidelines.[12,13] Alternative approaches such as telephone consultations are unrecommended, however, comparison with other strategies of delivery would have been insightful. Enough is yet unknown about the variations in practice amongst NHBSP units and therefore further research is warranted. Inclusion of patient representatives may facilitate delayed response due to shock.

Researcher influence is inevitable within qualitative design; transparency was maintained with full transcription. Braun and Clarke report that exploratory analysis of all transcripts provides insight into areas expected but also enables digression, conveying a honest report.[51] The researchers' background and experience could enhance the sensitivity of the theory and allow for concepts to be identified and explored. However, this insight could also block differing perceptions and therefore attempts were made within the methodology design to ensure the researcher did not unintentionally bias the findings. Alvesson and Skoldberg model of reflexivity (2009) was applied.[52] Concurrent data collection enabled clarification and insight into the participants' responses with respondent validation and second blind analysis of the coding enhancing trustworthiness.[53]

A limitation is a single centre inquiry reducing the generalisabilit; however, within the confines of this research extensive analysis has provided the foundation as a preliminary study. Mammography APRs are limited by the advanced practice modules available within breast; reporting, ultrasound and interventional. Whilst experience may vary, these qualifications are comparable within other units. Extension to a national survey of units would enable evaluation of current practice. Diversity within the sample was unexplored and may have limited the data. Therefore, although findings imply benefit to NHSBSP workflow, multicentre research incorporating less experienced APRs would allow for data saturation to support or refute the possibility of this becoming widely practiced.

CONCLUSION

In summary, we explored a small cohort of APRs and determined delivery of all breast results is within their scope of practice, following ACST and some departmental training. Acknowledgement of potential barriers including patient awareness and role boundaries were discussed; however, overcome within a supportive environment; essential for patient and clinician wellbeing. A contentious issue of patient preferences acknowledged feedback could be insensitive although not unfeasible with patient representatives involved in the evaluation; however, BCN response could prove an alternative. Implementation of delivering benign results may increase confidence before extending to malignant results. Overall, APRs consider role extension will positively impact on their profession and reduce departmental pressures whilst maintaining the high standard of patient care. With additional multicentre research enabling data saturation, the study has implications to become widely adopted amongst NHSBSP units and requires consideration by all breast radiologists.

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within the department for their participation. Successful implementation would not have been possible without the dedication and professionalism of these outstanding radiographers who have come to show that opportunities within their field may be defined but are not without possibility.
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DECLARATIONS OF INTEREST

There are no actual, potential or apparent conflicts of interest to be noted by the author. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

ETHICAL APPROVAL

Informed consent has been acquired by all participants. Chatham House Rules applied. Transcripts anonymised. No personal or identifiable images or data used. Ethical approval from NHS Research & Development and the University of Salford ethics committee acquired prior to commencing study.

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